

REQUESTS FOR QUALIFICATIONS
for
TOTAL BUILDING COMMISSIONING SERVICES
for
SCHOOL FACILITIES PROJECTS

Contract No.: GP-0133-R01

Issued: Wednesday, March 25, 2009

Due Date: Wednesday, April 8, 2009

**TOTAL BUILDING COMMISSIONING SERVICES
REQUEST FOR QUALIFICATIONS (“RFQ”)**

INTRODUCTION

The New Jersey Schools Development Authority (“SDA”) is seeking the services of a qualified Commissioning Authority (CxA) to provide total building commissioning services. The Owner is committed to commissioning these facilities to ensure all systems are well designed, constructed, complete, and functioning properly upon occupancy and that the Owner’s staff has adequate system documentation and training.

The NJSDA intends to award to a minimum of three (3) firms in accordance with this solicitation. The maximum amount of compensation payable to a Commissioning Agent (“CxA”) during the Term of the Agreement shall not exceed an amount to be determined between \$3 and \$5 million. Firms receiving an award as a result of this procurement will be the exclusive and sole pool of firms that will compete for Full Building Commissioning Services Task Orders during the Term of the Agreement, unless circumstances warrant a sole source negotiation and award for a particular Full Building Commissioning Services Task Order. The Term of the Agreement shall extend for a period of two (2) years or until all obligations of the CxA to deliver services pursuant to any Task Order have been performed to the satisfaction of the NJSDA, whichever is later; unless at the sole option of the NJSDA, it is extended for up to two one-year extensions, in which case the Term shall extend from the Effective Date through such additional period or until all obligations of the CxA to deliver services pursuant to the Agreement have been performed to the satisfaction of the NJSDA, whichever occurs later.

After entering into Agreement for Full Building Commissioning Services with a pool of firms, the NJSDA has no obligation to award any Task Order to any firm.

This RFQ is the first of a two-step process outlined below:

1. Request for Qualifications (“RFQ”): A bidder must first respond to the items listed under RFQ Submittal listed below.
2. Request for Proposals (“RFP”): The SDA will issue an RFP to firms that are shortlisted through the RFQ process.

This Request for Qualifications consists of the following:

1. Request for Qualifications
2. Attachment A: Scope of Services *

***The attached Scope of Services may be utilized in whole or in part by the Authority at its sole discretion.**

Responses to this RFQ must be received by the NJSDA by **5:00 p.m. on Wednesday, April 8, 2009**.

Any firm responding to this RFQ **must be** classified by the Department of Treasury, Division of Property Management and Construction and the NJSDA in Architecture (P001) or HVAC Engineering (P003) or Mechanical Engineering (P008) or Building Commissioning (P019) with a rating of \$1,000,000 or greater as of the RFQ submittal due date.

The firm must submit one (1) unbound original and five (5) copies of the submission no later than **5:00 p.m. on Wednesday, April 8, 2009** as follows:

If submitting by hand or overnight delivery, at the:

**NEW JERSEY SCHOOLS DEVELOPMENT AUTHORITY
Procurement & Contract Services
1 West State Street – 1st Floor
Trenton, New Jersey 08625-0991
Attention: Megan Cox, Senior Procurement Analyst
Subject: Total Building Commissioning Services Proposal**

If submitting by U.S. Mail, address packages to:

**NEW JERSEY SCHOOLS DEVELOPMENT AUTHORITY
Procurement & Contract Services
P.O. Box 991
Trenton, New Jersey 08625-0991
Attention: Megan Cox, Senior Procurement Analyst
Subject: Total Building Commissioning Services Proposal**

Submissions received after the date and time listed above will not be forwarded to the Selection Committee for review.

Faxed or e-mailed submissions shall not be accepted.

RFQ SUBMITTAL

Firms responding to this RFQ shall thoroughly familiarize themselves with the RFQ to ensure responsiveness in their submission. The RFQ Submittal is to consist of the following:

1. Cover Letter
2. Organization Chart
3. Commissioning Experience
4. Firm Qualifications
5. Project Understanding
6. Project Approach
7. SBE Compliance
8. Business Registration

1. Cover Letter

Present a brief understanding of the School Facilities Project and the SDA's needs based upon the requirements of this document, past experience, and other information relevant to the firm's qualifications.

2. Organization Chart

The organization chart must include the members of the commissioning team (CxA) for this project who will be integral in the entire project. The Proposal **must** identify the individual Cx Project Manager who, **from project start to completion**, will be the leader of your team and the principal point of contact between your commissioning team and the whole Project Team (Project Team includes: SDA, School District, CM, Design Consultant, Community and the CxA, when selected). This individual's competence, leadership, and ability to achieve **client** satisfaction will be heavily considered in the selection of the CxA.

3. Firm Commissioning Experience

Provide project descriptions of three (3) recently commissioned projects (executed within the last five years) for which the respondent was the principal CxA. The detailed project descriptions shall include: type of facility, description of project with square footage, overall construction cost and systems commissioned, and what scope of commissioning was provided. Also, please provide the name and contact information of the project manager that represented the owner for each of these projects.

4. Firm Qualifications

The firm identified in the proposal must submit documentation that shows that the firm meets all the qualifications as stated in this document. The firm must also have worked together on similar projects in the past 24 months.

5. Project Understanding

Provide a comprehensive narrative that illustrates your firm's understanding of the commissioning requirements for this project.

6. Project Approach

Provide a thorough description of your firm's approach to executing the project, including your team's participation.

7. SBE Compliance

The selected Consultant shall be required to make good faith efforts to ensure that small business enterprises ("SBEs") have the maximum practicable opportunity to participate in the performance of this engagement. A 25% target has been established pursuant to N.J.A.C. 12A:10-1.1 et seq., and Executive Order No. 71 (2003). Firms shall be required to meet set-aside targets of 5% for Category 4, 10% for Category 5 and the remaining 10% for any combination of Categories 4 and 5. **Provide detail of how your firm will satisfy this requirement (e.g. name of SBE, % of fee, % of work).**

8. Business Registration

Pursuant to N.J.S.A. 52:32-44, as amended by P.L. 2004, c. 57, each proposing firm must provide proof of valid business registration with the Division of Revenue of the New Jersey Department of the Treasury (the "Division of Revenue"), in its Proposal.

Any subcontracted firm must provide a firm selected as a Consultant with a copy of its business registration, which the Consultant must forward to the SDA. No firm selected as a Consultant may

enter into any subcontract with a firm that has not provided proof of valid business registration to the selected firm, for forwarding to the SDA. The SDA shall duly file all business registrations with the other procurement documents relating to the contract. **Business registrations of proposed sub-consultants, if any, are NOT required to be included in a firm's Proposal.**

Firms may obtain NJ Business Registration assistance by going on-line to www.state.nj.us/treasury/revenue/gettingregistered.htm, or by calling the NJ Department of Treasury at (609) 292-1730. Please be advised, however, that business registrations are mailed generally within seven to ten days, so firms should plan accordingly.

SELECTION PROCEDURES

Each RFQ will be reviewed to determine responsiveness. Responsive submissions will be evaluated by the selection committee. Evaluations will be based on the following Evaluation Criteria:

	Maximum Points
Firm Commissioning Experience	25
Firm Qualifications	25
Project Understanding	20
Project Approach	20
SBE Compliance	10
Total:	100

AWARD REQUIREMENTS

After determination of the highest ranked firm, the SDA shall request the following information prior to the award of the contract:

a. **Public Works Contractor Registration Act.** If applicable, the Consultant must be properly registered pursuant to the Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq.

b. **Political Contributions.** P.L. 2005, c. 51 amended and supplemented N.J.S.A. 19:44A-20.1 et seq., and superseded Executive Order 134 (2004), addresses the effect of political contributions on State contracting. Accordingly, a selected firm will be required to respond in a timely fashion to certification and disclosure requirements that will be stated in the Notice of Award issued by the NJSDA. Additionally, Executive Order No. 117, which is designed to enhance New Jersey's efforts to protect the integrity of government contractual decisions and increase the public's confidence in government. The Executive Order builds on the provisions of P.L. 2005, c. 51 ("Chapter 51"), which limits contributions to certain political candidates and committees by for-profit business entities that are, or seek to become, State government vendors.

c. **Outsourced Services Special Provisions.** Under P.L. 2005, c. 92 (formerly Executive Order No. 129 (2004)), the NJSDA shall not award a contract to a bidder that submits a bid proposal to perform services, or to subcontract with a firm to perform services, outside the United States,

unless certain conditions are met. If, during the term of the contract, the Consultant or subcontracted firm, who had on contract award declared that services would be performed in the United States, proceeds to shift the performance of the services outside of the United States, the Consultant shall be deemed in breach of the Agreement, unless the Senior Director of the NJSDA Division of Procurement and Contract Services shall have first determined in writing that extraordinary circumstances require a shift of services or that a failure to shift the services would result in economic hardship to the NJSDA or the State.

d. Anti-Discrimination Requirements. In addition, the Consultant shall not discriminate in employment and shall abide by all anti-discrimination laws including those contained within N.J.S.A. 10:5-1 et seq. and all rules and regulations issued there under, including N.J.A.C. 17:27-1 et seq. **Accordingly, in a notice of award, a firm shall be required to submit to the NJSDA, with its executed Agreement, one of the following three documents:**

- (1) appropriate evidence that the contractor is operating under an existing Federally approved or sanctioned affirmative action program;
- (2) a certificate of employee information report approval issued in accordance with N.J.A.C. 17:27-4; or
- (3) an initial employee information report (Form AA302) provided by the Affirmative Action Office and completed by the contractor in accordance with N.J.A.C. 17:27-4.

***The original of this document shall be provided to the New Jersey Department of Treasury.** Please see following link for details.
http://www.state.nj.us/treasury/contract_compliance/pdf/aa302ins.pdf

e. Firm's Proposal for SBE Set-Aside Targets (NJSDA SBE Form A). The NJSDA may only recognize firms duly registered with Commerce as SBEs. There are two categories of SBE comparative sizes based upon average annual revenue for purposes of professional service contracts;

Category 4: firm with revenues not exceeding \$1,000,000;

Category 5: firms with revenues not exceeding federal revenue standards established at 13C.F.R.121.201.

Firms shall be required to meet set-aside targets of 5% for Category 4, 10% for Category 5 and the remaining 10% for any combination of Categories 4 and 5. These targets may be met by means of a firm's own SBE registration and the registration of subcontracted firms.

The successful firm must submit a completed NJSDA Form SBE A, identifying all SBE firms proposed for use on the engagement to meet (or exceed) the set-aside targets. Please note that any firm identified as an SBE must be registered as such with Commerce when the firm submits its proposal, in the revenue category specified. In the event that a proposing firm names a subcontractor for SBE purposes, and the subcontractor is not registered as an SBE with Commerce at the time of proposal, the proposing firm must disclose that fact and explain how and when the lack of registration shall be cured.

If a firm fails to show that it will meet SBE subcontracting targets, it must

document its good faith efforts to meet the targets, in accordance with the provisions of N.J.A.C. 12A:10-4.

A firm shall not be permitted to remove or substitute any firms listed on NJSDA Form SBE A without prior written approval from the Corporation.

For more information on statewide listing of firms certified as small, woman and minority owned business enterprises and to learn more about the Standards of Eligibility to become registered as a "Small Business" contact the Business Services Call Center at 1-866-534-7789, or visit New Jersey's business web portal: <http://www.nj.gov/njbusiness/contracting>

The SDA may request additional information as required under the Agreement, policies, procedures or law.

ATTACHMENT A

Part A: SCOPE OF SERVICES

A. Commissioning Authority Responsibilities

The Owner is committed to commissioning this facility to ensure that all MEP including building automation / energy management controls, ductwork and pipe insulation, renewable and alternative energy systems, lighting and daylighting control systems, waste heat recovery, advanced technologies (such as demand control ventilation, etc.), life safety and security systems, and building exterior enclosure assemblies, are complete and functioning properly prior to substantial completion and that facility staff has adequate system / assembly documentation and training. This Appendix provides a more specific description of the Scope of Services required to be performed. Commissioning consists of systematically documenting that specified assemblies, components, and systems have been installed and started up properly, functionally checked, and performance tested to verify and document proper operation and capacity through all modes and conditions. In addition, owner-personnel training will be verified and final project operations and maintenance (O&M) documents will be reviewed for completeness. CxA responsibilities specifically include:

Program/Concept (Pre-Design) Phase

1. Participate in the Project Kick-Off Meeting with the Project Team; subsequent to this meeting the CxA shall form the Cx Team.
2. Attendance at the LEED Charrette with the Project Team, as described by the SDA Design Manual. This Charrette shall be conducted as preparation for or simultaneously with the Owner's Project Requirements (OPR) Workshop.
3. Conduct an Owner's Project Requirements (OPR) Workshop with the Project Team to develop the OPR document in accordance with the definition contained in the current SDA Design Manual.
4. Develop Pre-Design Acceptance Requirements for the project in accordance with the referenced ASHRAE/NIBS Guidelines and associated sample formats.
5. Develop a hard copy or electronic Commissioning Manual for the project in accordance with the referenced ASHRAE/NIBS Guidelines and associated sample formats.
6. Develop the Initial Commissioning Plan, including contact personnel, responsibilities and a schedule of commissioning activities in conformance with referenced guidelines and appendices as approved by the Owner.
7. Develop procedures for an Issues Log as an electronic issues database by which to track all commissioning issues/deficiencies and subsequent resolutions. Provide a report on a regular basis identifying new issues, unresolved issues and closed issues. The report to be provided throughout the entire project at each project review meeting, minimally, until completion of the commissioning activities.
8. Submit Cx documentation (Product) for approval of Owner.

Design Phases (Concept, Schematic Design, Design Development and Construction Documents)

Each of the following tasks shall be repeated, unless otherwise noted, as often as necessary at each phase as delineated by the SDA Design Manual.

1. Provide guidance and assistance to the Design Team in their development of the commissioning specific deliverables. Review and approve these deliverables for compliance with the Commissioning Manual prior to submission to the Owner.
2. Participate in the Design Review meetings at each of the designated submissions as described by the SDA Design Manual to review the development of all deliverable documentation for consistency with the most current Owner's Project Requirements, specifically, including the LEED for Schools pre-requisite and elected credits. The CxA shall review the Project Progress Report and completed LEED Checklists submissions and issue its comments to the Design Consultant prior to submission of these materials to the Owner and/or its agent. Unresolved issues should be identified in the Issues Log by the CxA.
3. Perform a commissioning focused Peer Review of the Construction Documents (drawings and specifications) at each of the designated submissions with particular emphasis on issues identified by **Part C** of this document. The review shall be a four-step process as described by ASHRAE Guideline 0-2005, Annex N; General, Coordination, Field Specific, and Specification Review.
4. Update the OPR as specific design decisions/details are determined.
5. Update the Commissioning Plan as specific design decisions/details are determined and confirm that commissioning requirements are modified accordingly.
6. Develop Commissioning Specifications for all equipment/assemblies to be commissioned upon the Owner's acceptance of Design Development Construction Documents. Coordinate with and assist with the integration of the development of Design Consultant's Construction Specifications specific to commissioning. The referenced ASHRAE/NIBS Guidelines shall be used for content, rigor, and format. The commissioning specification will include a detailed description of the responsibilities of all parties, details of the commissioning process; reporting and documentation requirements, including formats; alerts to coordination issues, deficiency resolution; construction checklist and startup requirements; the functional testing process; specific functional test requirements, including testing conditions and acceptance criteria for each piece of equipment / assembly being commissioned.
7. Facilitate a controls integration meeting where all pertinent Design Consultants (specifically including representatives of the mechanical, electrical, plumbing, life-safety, and information technology disciplines) are present to review and discuss integration issues between equipment, systems and trades to ensure that integration issues during the various sequences of operation are compatible and responsibilities for associated work are clearly described in the specifications. This meeting shall occur at minimum once each during Schematic Design, Design Development, and Construction Document Phases.

Bid and Contract Award Phase

1. Attend Pre-Bid Meeting to document commissioning related questions for inclusion and response in addendum and commissioning record(s).

Construction Administration Phase

In general, the responsibility of the CxA during construction shall be to coordinate and conduct the commissioning activities in a logical, sequential, and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications, and consultations with all necessary parties, frequently updated timelines and schedules, and technical expertise. The CxA is required to:

1. Update the OPR as specific products, directives, and/or addenda are determined.
2. Update the Commissioning Plan as specific products, directives, and/or addenda are determined and confirm that commissioning requirements are modified accordingly.
3. Installation Checks-- Verification that equipment, components, and assemblies are installed properly.
4. Functional Checks -- Verification that equipment and systems have been set-up and started properly, and are all operating in accordance with the design documents, OPR, and Owner's needs. Functional checks include both normal and abnormal operating parameters.
5. Performance Tests -- Verification that equipment, assemblies, and systems are capable of providing rated performance in the installed condition and in the installed ambient environment.
6. Specific activities of the CxA during the construction phase include the following:
 - a. Plan and conduct a commissioning "kick-off" meeting where the commissioning process is reviewed with the commissioning team members (general contractor, subcontractors, vendors, design team, etc.)
 - b. Plan and conduct commissioning meetings with the construction team and the Owner. Purpose of these meetings is to review issues identified and track status of outstanding issues
 - c. Update / populate the issues database and issue database reports described in the planning phase
 - d. Review Project Schedule for Cx activities.
 - e. Confirm that the contractor has included the commissioning milestones in the critical path schedule and the schedule of values
 - f. Review submittals (shop drawings, product submittals, etc.) on systems and assemblies to be commissioned concurrent with the Design Consultant's review for compliance with OPR design intent.
 - g. As approved submittals are routed to the CxA, develop installation check sheets for each component to be commissioned. Installation check sheets shall be tailored specifically to the equipment manufacturer. Installation check sheets shall confirm (at a minimum):
 - i. Verification of component model number
 - ii. Verification of component capacity
 - iii. Verification of component installation in comparison to the engineer of record's documents

- h. Distribute checklists and report on their completion by contractors
- i. Perform site visits, as necessary, to observe component, systems, and assemblies installation for quality control. Periodic Construction Monitoring of the enclosure shall be increased during the installation of critical elements, specifically, enclosure and control interface conditions. Attend selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/substitutions relating to the commissioning process
- j. Assist in resolving any discrepancies and the development of details for elements not addressed or coordinated during design.
- k. Approve, along with manufacturer's representative, systems startup by reviewing start-up plans and by site observation.
- l. Field review of mock-ups to verify that they meet design intent. In addition, enclosure (envelope) systems and assemblies shall be evaluated on the basis of water and air tightness, and sufficient time shall be allotted in the Project Schedule for remediation of unforeseen conditions. Designated mock-up areas shall not be on the critical path.
- m. Check portions of TAB services related to performance data for air and water HVAC systems and verify with the CxA firm's own in-house, or subcontracted, NIST calibrated equipment and technicians.
- n. Write functional checks and performance test procedures for all equipment, systems, and assemblies that are to be commissioned. This includes manual functional testing, energy management control system trending and stand-alone data logger monitoring with the CxA firm's own in-house equipment and personnel. Minimal requirements of the performance tests are included or referenced in Part C of this document.
- o. Confirm plumbing fixture water consumption rating based on nameplate data.

Project Close Out (Acceptance) Phase

- a. CxA to witness the functional checks by the contractor which will be performed according to the CxA developed test procedures
- b. CxA to witness the performance test protocols by the contractor which will be performed according to the CxA developed test procedures
- c. Performance tests are to include testing for maximum background noise per ANSI/ASA standards. Tests are to be taken in 20% of instructional spaces.
- d. The building automatic controls system (BAS) is to be used to trend the building for Thermal Comfort (temperature and humidity) in the 20% estimated worst case classrooms and offices and 100% of the common spaces
- e. Light Levels are to be tested under nighttime and daytime conditions in the 20% estimated worst case classrooms and offices to ensure Visual Comfort uniformity and light levels
- f. Take Airborne Mold samples once every three months during construction after the building is closed in (all walls and 90% windows on all sides). Take samples every three weeks, three times in the last nine weeks, prior to occupancy. Each set of tests to include five air samples at estimated worst case locations in the building. Take three outside samples as well and report on comparison between indoor and outdoor. Sampling and testing to be performed by a certified industrial hygienist
- g. Take Hydrocarbon Vapor (volatile organic compounds, VOC) samples weekly for the last four weeks prior to occupancy with disposable test elements. At a minimum, test for benzene, formaldehyde, "paint thinner", and adhesive solvents
- h. Update / populate the issues database and issue database reports as described in the planning phase
- i. Review equipment warranties to ensure that the Owner's responsibilities are clearly defined

- j. Review, pre-approve, and coordinate the training of the Owner's operating personnel by the contractor.
- k. Review the O&M documentation for completeness. This review shall be in parallel with the A/E's review of the O&M manuals for conformance to the project specifications

Post Occupancy (Acceptance) Phase

- a. Verify the correct configuration of building automation system trend logs that will be used to track building performance during occupancy. Verify building automation trends utilizing independent data loggers owned by the CxA.
- b. Perform opposite season performance testing of the systems commissioned. Seasonal testing shall consist of executing the system's performance test. The performance test shall meet the requirements as stated in *Project Close-out Phase* requirements.
- c. During the first year of occupancy (twelve months from the date of substantial completion), return to the site at 10 months, prior to the Design Consultant's visit, into the twelve-month warranty period and review the current building operation with staff and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have with operating the building as originally intended. Identify deficiencies that may come under warranty or under the original construction contract.
- d. Verify System Manual update, specifically includes maintenance needs, operating parameters, and replacement (service life) schedules.
- e. Verify training materials and content, to be documented by video production to be provided to the operators, is deemed suitable for instruction of additional staff without the benefit of in-person instruction.
- f. Provide a final commissioning report. The report shall include an executive summary, list of participants and roles, brief building description, overview of commissioning and testing scope and a general description of testing and verification methods. Specifically, the report shall include the following (at a minimum) as it pertains to the commissioned equipment/assemblies:
 - i. OPR
 - ii. Basis of Design and Engineer's Narrative
 - iii. Commissioning Plan
 - iv. Completed Installation check lists/sheets
 - v. Completed Functional check lists/sheets
 - vi. Completed Performance test sheets
 - vii. Issue Database
 - viii. Seasonal test report
 - ix. Warranty review report

B. Systems/Assemblies to Be Commissioned

The following systems/assemblies, including all components and controls, as further described by **Part B** of this document as 'Required Scope', are to be commissioned:

- a. Building Envelope Assemblies and associated interface conditions
- b. Architectural Specialties

- c. Life Safety and Security Systems
- d. Heating, Ventilation, Air Conditioning and Refrigeration(HVAC&R) Systems
- e. Plumbing Systems and components
- f. Electrical Systems, including IT
- g. Building Automation / Energy Management Systems

C. Equipment / Assemblies Sampling

There is to be no equipment sampling. All equipment is to be inspected and tested 100%.

All Building Enclosure assemblies and systems shall be inspected and tested 5%. Components and/or systems identified in preliminary sampling as deficient shall be tested 100%.

D. List of Deliverables

Deliverables shall be provided as follows for the above-described stages of Cx project:

- A. Cx Team Introduction Meeting Minutes
- B. Meeting Minutes From Owner's Project Requirements (OPR) workshop
- C. Owner's Project Requirements (OPR)
- D. Cx Plan
- E. Cx Specifications
- F. 100% DD Cx Plan review
- G. 100% CD Cx Plan review
- H. Periodic Issues Database reports
- I. Meeting minutes from Contractor Kickoff Meeting
- J. Cx Installation Check lists/sheets, blank and completed
- K. Cx Functional Check lists/sheets, blank and completed
- L. Cx Performance Test sheets, blank and completed
- M. O&M Manual Review report
- N. O&M Training Review report
- O. Final Cx Report
- P. Seasonal Testing report
- Q. Warranty Inspection report

Part B: SYSTEMS/ASSEMBLIES TO BE COMMISSIONED

Building Envelope, Specialties, and Life Safety Systems, Assemblies, and Components to be Commissioned	Required Scope
BUILDING ENVELOPE ASSEMBLIES	
Foundation / Basement Floor Slab including water drainage system	●
Below Grade Exterior Walls inc. waterproofing and water management system(s)	●
Above Grade Exterior Walls including air barrier and water management systems	●
Above Grade Exterior Wall Penetrations (Pipe, Duct, etc.)	●
Exterior Windows, Doors, and Louvers (Fenestration)	●
Roof System(s) including parapet copings and vegetated (green) roof and plaza deck systems	●
Roof System Penetrations (Pipe, Duct, etc.)	●
Skylights, Sloped Glazing, and Hatches (Fenestration)	●
Expansion Joints, Control Joints, and Sealant Systems	●
Interface Connections between each of the above listed components	●
Flashing, including all transitions and end dams, etc.	●
Smoke and Fire stopping / separation	●
Interface Connections to existing structures	●
Special Architectural elements, equipment and controls (<i>shading devices, etc</i>)	●
Special Envelope Performance Criteria (blast, hurricane, thermal, infiltration)	●
SPECIALTIES	
Elevators	●
Kitchen/food service (<i>Ansul Fire Suppression System</i>)	●
Automatic doors	●
Renewable Energy Systems (Electrical, Biomass, Geo-Thermal, etc.)	●
LIFE SAFETY AND SECURITY SYSTEMS	
Fire Suppression/protection systems	●
Egress pressurization/Atrium smoke purge	●
Fire Alarm	●
Emergency lighting systems	●
General egress (panic hardware, etc.)	●
Elevator recall	●
Access control	●
Alarm monitoring	●
Surveillance	●

Mechanical, Electrical, and Plumbing (MEP) Systems, Assemblies, and Components to be Commissioned	Required Scope
HEATING, VENTILATING, AIR CONDITIONING, & Refrigeration (HVAC&R)	
Thermometers	•
Vibration isolation	•
Steam condensate systems	•
Hot water heating systems	•
Computer room air conditioning units	•
Chemical water treatment systems	•
Liquid chillers	•
Cooling towers	•
Condenser water system	•
Chilled water system	•
Refrigeration system	•
Air terminal unit system/VAV units	•
Duct silencers	•
Fire and smoke/fire dampers	•
Variable speed drives	•
Air distribution systems	•
Exhaust air systems	•
Laboratory fume hoods	•
PLUMBING SYSTEMS AND COMPONENTS	
Cleaning/flushing water systems	•
Thermometers & gauges	•
Sump pumps and ejectors	•
Trap primers	•
Water heaters, water coolers	•
Domestic water booster pumps	•
Emergency shower/eyewashes	•
Fuel oil/gas systems	•
Showers/Lavatories/Toilets (<i>Hands Free</i>)	•
ELECTRICAL SYSTEMS	
Electrical primary voltage system (<i>voltage only</i>)	•
Emergency power system	•
Generators	•
Lighting controls (scheduled/occupancy sensors)	•
Daylight dimming controls	•
Variable speed drives	•
Thermographic Survey	•
Data & communication system	•
Paging system	•
Renewable Energy Systems	•

Building Automation / Energy Management Systems, Assemblies, and Components to be Commissioned	Required Scope
Component FPT and calibration	•
Control air supply	•
Air terminal units, non lab	•
Air terminal units, lab supply/fume exhaust	•
Full Operation of Sequence as described by the Operations Documentation, specifically including the following:	•
Sequence control, AHU, 100% OSA	•
Sequence control, EAHU	•
Sequence control, AHU, H&V	•
Sequence control, exhaust air fans	•
Sequence control, differential bypass valve	•
Sequence control, air terminal units, CV	•
Sequence control, air terminal units, VAV/CV	•
Sequence control, air terminal units, VAV	•
Sequence control heat exchanger	•
Sequence control, variable speed pumps	•
Sequence control, cabinet unit heaters	•
Sequence control, condenser water system	•
Sequence control, steam humidifiers	•
Sequence control, water heaters	•
Sequence control, heating coils/radiant panels	•
Sequence control, labs with VAV fume hoods	•
Sequence control, condenser water filters	•
Sequence control, steam generator	•
Graphic display	•
Trend logs	•
Status review screens, checks, & alarming	•
Network communication	•

Part C: PEER REVIEW OF CONSTRUCTION DOCUMENTS

The CxA will perform a peer review of the design documents for the following issues at each of the deliverable submissions described by the SDA Design Manual.

DESIGN AREA	REVIEW DESCRIPTION
Project Progress Report (Design Narrative)	Ensure that the design narrative and basis of design are clear, complete, and meet the original Owner Project Requirements (OPR), specifically including the requirements of the SDA Design Manual and USGBC LEED for Schools Rating System.
Commissioning	Verify that systems and assemblies to be commissioned are properly addressed by the Construction Documents and adequate quality assurance and testing methods have been required to assure compliance with the OPR.
High Performance Building Envelope, HVAC, and Lighting Systems Analysis	Review for adequacy of the effectiveness of building layout and efficiency of system types and components for building envelope, HVAC and lighting systems in relation to analysis performed. Check the calculations and input/output print-outs for the building energy modeling. Whole-building energy use must indicate consumption 14% less than base case meeting ASHRAE Standard 90.1-2007. Check the lighting drawings and specifications to confirm the design meets “high performance” standards as defined by IECC 2006 and IESNA 90.1. Check calculations to verify feasibility of Daylighting analysis.
Control Systems	Review HVAC, lighting, building management, emergency power, and security control systems, strategies and sequences of operation for adequacy and efficiency.
Indoor Environmental Quality	Review to ensure that systems relating to thermal, visual, acoustical, air quality comfort, and air distribution maximize comfort and are in accordance with the OPR. Confirm provisions necessary to address Indoor Air Quality requirements, including specification requirements for a construction IAQ plan, the selection of pre-approved low-emission products, and pollutant source containment have been addressed by the design documents. Check the drawings and specifications to confirm the design meets acoustical criteria ANSI / ASA Standard S12.60-2002 as modified by the SDA Design Manual. Check the drawings and specifications to confirm the design meets thermal criteria ASHRAE Standard 55-2004 as modified by the SDA Design Manual. Check the drawings and specifications to confirm the design meets visual criteria as established by NJDOE Facility Planning Standards as modified by the SDA Design Manual.
Operations and Maintenance, Design for	Review for effects of specified systems and layout toward facilitating O&M (equipment accessibility, system control, etc.).

Operations and Maintenance Documentation and Training	Verify adequate building O&M documentation and training requirements have been established.
Sustainability	Review to ensure that the building materials, landscaping, use of water, and waste management are in accordance with the OPR and the most recent LEED for Schools project specific checklist. Check drawings to confirm the design includes Recycling Centers for containers and paper.
Mechanical, Electrical and Plumbing (MEP)	Review the MEP descriptions and documentation for potential enhancements to be considered by the Project Team. Check MEP Equipment for compliance with ASHRAE 90.1-2004 and IECC 2006. Confirm the project does not include any CFC refrigerants. Check design and calculations for Reduced Water Consumption (reduce irrigation by 50% relative to standard baseline and reduce fixture use by 20% compared to standard fixtures).
Building Enclosure (Envelope)	Review envelope design and assemblies for thermal, water moisture vapor, air integrity, and anticipated Service Life. Check Envelope Design and Calculations for compliance with ASHRAE 90.1-2007 and IECC 2006. Check calculations to confirm the Service Life Planning analysis assumptions are consistent with the OPR and the operations and maintenance documentation.
Life Cycle Costs	Review Life Cycle Cost assessment of the primary HVAC, lighting and renewable energy systems under consideration for validity of assumptions and alternate systems to be considered. Confirm that renewable energy alternatives of wind and solar have been reviewed. By checking calculations confirm these alternatives have been included in the project if their simple paybacks are less than 10 years.